

CLAIMS

What is claimed is:

5 1. In a burst-type communication system comprising a transmitter and a receiver, a method of communicating information in a preamble synchronization sequence of a burst transmission, comprising:

10 selecting, at the transmitter, a selected one of a plurality of initial detection sequences, representing one or more first preamble information bits;

15 selecting, at the transmitter, a selected one of a plurality of unique words, representing one or more second preamble information bits;

20 transmitting, at the transmitter, said preamble synchronization sequence comprising said selected one initial detection sequence and said selected one unique word;

25 receiving, at the receiver, said preamble synchronization sequence;

30 detecting, at the receiver, said one initial detection sequence to produce first time synchronization information and to receive said one or more first preamble information bits; and

detecting, at the receiver, said one unique word to produce second time synchronization information and to receive said one or more second preamble information bits.

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2. The method of claim 1, further comprising:

differentially encoding, at the transmitter, said preamble synchronization sequence before transmitting said preamble synchronization sequence; and

differentially decoding, at the receiver, said preamble synchronization sequence before detecting said one initial detection sequence and before detecting said one unique word.

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and a second unique word, said second unique word being a logical inverse of said first unique word.

5 5. The method of claim 1, further comprising:

5 direct sequence spreading, at the transmitter, said preamble synchronization sequence before transmitting said preamble synchronization sequence; and

10 despreading, at the receiver, said preamble synchronization sequence before detecting said one initial detection sequence and before detecting said one unique word.

15 6. In a burst-type communication system, a receiver comprising:

15 a differential detector receiving a differentially encoded synchronization sequence and providing a base synchronization sequence comprising,

20 a first plurality of symbols, comprising an initial detection sequence, and

20 a second plurality of symbols, comprising a unique word;

an integrator receiving the base synchronization sequence and integrating the first plurality of symbols to produce an initial detection signal;

a threshold detector receiving the first plurality of symbols, detecting the initial detection, producing an initial detection strobe comprising symbol timing information, and providing a first preamble information bit; and

5 a unique word detector receiving the base synchronization sequence, detecting the unique word, and producing a second preamble information bit.

10 7. The receiver of claim 6, further comprising a PN matched filter receiving a direct sequence spread spectrum signal and providing the differentially encoded synchronization sequence.

15 8. In a burst-type communication system, a transmitter transmitting a preamble synchronization sequence, said preamble synchronization sequence comprising:

an encoded initial detection sequence comprising a plurality of symbols representing one or more first preamble information bits; and

20 an encoded unique word comprising a plurality of symbols representing one or more second preamble information bits.